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April 16, 2007

BY ELECTRONIC FILING

The Honorable Gregory M. Sleet
U.S. District Court
District of Delaware
844 N. King Street
Wilmington, DE 19801

***Re: Rohm & Haas Electronic Materials v. Honeywell International, Inc.,
C.A. No. 1:06-cv-00297-GMS***

Your Honor:

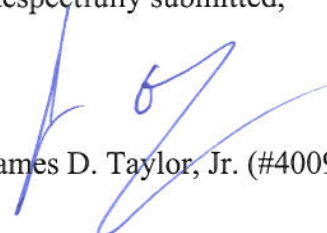
We are writing to apprise you of another recent development in connection with the reexamination of U.S. Patent 6,472,128 (the "128 patent"), which is one of the two patents being asserted by the plaintiff, Rohm & Haas, in this case.

On April 9, 2007, shortly after our March 28, 2007 tele-conference with the Court, Honeywell received the attached Ex Parte Communication from the PTO rejecting all of the issued claims of the '128 Patent on the grounds that each claim is invalid over the prior art cited in Honeywell's reexamination request.

Honeywell will apprise the Court of any similar developments in connection with the co-pending reexamination of the other patent in suit, U.S. Patent 6,773,864.

We are available at the Court's convenience should Your Honor have any questions concerning the attached Communication or any other issue relating to Honeywell's pending motion to stay this case.

Respectfully submitted,


James D. Taylor, Jr. (#4009)

JDT/gb

The Honorable Gregory M. Sleet
April 16, 2007
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cc: Rudolf E. Hutz, Esquire
Daniel C. Mulveny, Esquire
Constance S. Huttner, Esquire

Office Action in Ex Parte Reexamination	Control No. 90/008,359	Patent Under Reexamination 6472128	
	Examiner Stephen J. Stein	Art Unit 3991	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

- a ☒ Responsive to the communication(s) filed on 04 December 2006. b ☐ This action is made FINAL.
c ☒ A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter. Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).** If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 3. <input type="checkbox"/> Interview Summary, PTO-474. |
| 2. <input type="checkbox"/> Information Disclosure Statement, PTO/SB/08. | 4. <input type="checkbox"/> _____. |

Part II SUMMARY OF ACTION

- 1a. ☒ Claims 1-16 are subject to reexamination.
1b. ☐ Claims _____ are not subject to reexamination.
2. ☐ Claims _____ have been canceled in the present reexamination proceeding.
3. ☐ Claims _____ are patentable and/or confirmed.
4. ☒ Claims 1-16 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ The drawings, filed on _____ are acceptable.
7. ☐ The proposed drawing correction, filed on _____ has been (7a) ☐ approved (7b) ☐ disapproved.
8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the certified copies have
1 ☐ been received.
2 ☐ not been received.
3 ☐ been filed in Application No. _____.
4 ☐ been filed in reexamination Control No. _____.
5 ☐ been received by the International Bureau in PCT application No. _____.
* See the attached detailed Office action for a list of the certified copies not received.
9. ☐ Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.
10. ☐ Other: _____

cc: Requester (if third party requester)

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Reexamination

1. This is the first Office action in the Reexamination proceeding of Claims 1-16 of U.S. 6,472,128 issued on October 29, 2002 to Thackeray et al. ('128 patent). The application on which the patent was granted, 09/924,045, was filed on August 7, 2001 and is a continuation of 08/650,144, now US patent 6,451,504, filed April 30, 1996 and which is a continuation of U.S. 07/792,482, now U.S. 6,165,697, filed November 15, 1999. The earliest effective filing date of the patent is November 15, 1999.

Procedural Posture

2. A request for Reexamination was filed on December 4, 2006 by the third party Requester. An order for reexamination was granted on January 25, 2007. The patent owner has not filed a statement under 37 CFR 1.530.

Representative Claims

Claim 1. A coated substrate comprising:
a substrate having thereon:
a coating layer of an antireflective composition, the antireflective composition comprising a crosslinker and an anthracene material; and
a coating layer of a photoresist composition over the antireflective composition coating layer.

Claim 5. A method for forming a relief image on a substrate comprising:
applying on the substrate a layer of an antihalation composition comprising an anthracene material; and
applying over the antihalation composition coating layer a photoresist composition.

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Claim 1 and 5 are independent claims. Claims 2-4 depend from claim 1 and claims 6-16 depend from claim 5.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 7, 11, 12 and 15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9 and 28 of U.S. Patent No. 5,851,738. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the '128 patent does not explicitly claim that the photoresist composition layer comprises a resin binder and a radiation sensitive component, it would have been obvious to a person of ordinary skill in the art to make the photoresist layer of the '128 patent comprise both a resin binder and a radiation sensitive component since such photoresist compositions were known to be

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conventionally made of novalak resins and light sensitive quinone compounds (radiation sensitive components) (See for example U.S. 4,943,511 and U.S. 4,863,829).

Claim Rejections - 35 USC § 102

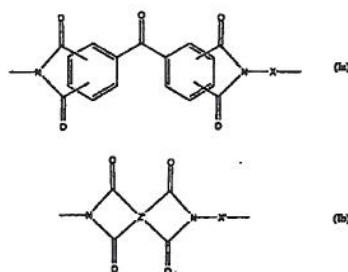
5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1-5 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,935,320 (Rhode).**

Regarding claim 1, Rhode discloses a coated material comprising (1) a substrate that can bear a relief image, (2) a photostructable negative working adhesive layer made of polyimide homo- and co-polymers, and (3) a self-supporting photocrosslinkable film (photoresist layer) (See column 4, lines 10-15 and column 11, lines 25-32). Rhode further teaches that the adhesive layer may contain anti-halo dyes additives (an additive which provides antireflective and antihalation properties) (See column 31, lines 5-12 and column 11, lines 27-51). Rhodes further teaches that the polyimide homo- and co-polymers which are useful in the both the adhesive layer and photocrosslinkable film layer are formed from repeating units of formula (Ia) and (Ib): (See column 11, lines 27-54).



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In these formulas, X and X' are the same or different divalent radicals of aromatic diamines, and Z' is a tetravalent aromatic radical (See column. 4, lines 59-62) and Z' is preferably one of five aromatic moieties, one of which is anthracene. Rhode also describes other anthracene-containing copolymers, represented by formula (II) and (III) (See column 11 lines 43-68). The anthracene embodiments of these formulas are specifically described at column 26, line 36 - column 27, line 49). Rhode further discloses that the polyamide polymer class of adhesives may include an organic chromophoric polyazide (an azide crosslinker) (See column 13, lines 13-27).

Regarding claim 2, as stated above, Rhode discloses that the adhesive layer may include a crosslinker as well as resins. Rhode further discloses that the coated material is exposed to light (See columns 1 and 2). Such cross-linkers will inherently crosslink with the resins contained in adhesive layer when exposed to light or heat.

Regarding claim 3, Rhode discloses that the adhesive layer may include copper onium salt (a thermal acid generator) (See column 16, lines 45-67).

Regarding claim 4, Rhode discloses that the antireflective layer may be placed over silicon wafer substrates (microelectronic wafer substrate) (See column 33, lines 17-18).

Regarding claim 5, as stated above, Rhode discloses applying an adhesive layer comprising anti-halo dyes and an anthracene containing polymers (antihalation layer) on a substrate and applying a self-supporting photocrosslinkable film (photoresist layer) over the adhesive layer (See column 11, lines 28-68, column 26, lines 36-53, column 32, lines 37-48).

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Regarding claim 11, as stated above, Rhode discloses that the antihalation adhesive layer comprises copper onium salts (thermal acid generators) (See column, 16, lines 51-53).

Regarding claim 12, Rhode discloses that the antireflective layer may be placed over silicon wafer substrates (microelectronic wafer substrate) (See column 33, lines 17-18).

Regarding claim 13, Rhode discloses exposing a substrate coated with an antihalation adhesive layer and a photoresist layer to actinic radiation and thereafter developing them with developer to produce a relief image on the photoresist layer (See column 32, lines 32-48).

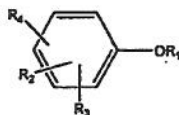
7. Claims 1, 2 and 4-8, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,863,827 (Jain).

Regarding claim 1, Jain discloses a process for forming a multilevel photosensitive element consisting of a substrate coated with a first a layer and a second photosensitive layer (photoresist layer) (See abstract and column 17, lines 51-48 and column 18, lines 64-68). The first photosensitive layer is formed using an alkali soluble resins such as novalak or polyvinyl phenol resin, an o-quinonediazide compound, and an acid catalyzed cross-linker compound (See column 16, line 49 - column 17, line 30). The quinonediazides included in the first photosensitive composition layer are represented by the structure:

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wherein R1= 1,2-benzoquinone-2-diazide-4-sulfonyl; 1,2-naphthoquinone-2-diazide-4-sulfonyl; or 1,2-anthraquinone-2-diazide-4-sulfonyl (anthracene compounds) (See column 10, lines 2-27). When these diazides are exposed to actinic radiation, they generate an acid that catalyzes a crosslinking reaction between the alkali soluble resin and the crosslinker compound (See column 5, lines 1-7). The degree of crosslinking may be controlled by adjusting the dosage and temperature of the post-exposure bake, but if no post-exposure bake is used, the first photoresist layer behaves as a conventional positive resist (See column 2, lines 53-68). Jain still further discloses that additives such as organic dyes and adhesion promoters may be added to the first photosensitive layer before it is coated on the substrate and that dyes help provide increased resolution by inhibiting the back scattering of light off the substrate so that the first photosensitive layer is thereby rendered. Thus, the first photosensitive layer is a layer with antihalation and antireflective properties (See column 17, lines 59-64 and column. 18, lines 4-6).

Regarding claim 2, as stated above, Jain discloses that the first layer contains crosslinkers (See column 16, lines 49-53, column 4, lines 17-19 and example 1).

Regarding claim 4, Jain discloses that the first layer is place over a silicon wafer (microelectronic substrate) (See column 31, line 32).

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Regarding claim 5, as discussed above, Jain discloses a process of applying antihalation compositions, including antihalation/antireflective layers containing anthracene materials, on a silicon substrate, and also discloses applying photoresist over the layer (See column 18, lines 4-6, column 10, lines 2-27 and column 1, lines 67-68).

Regarding claim 6, as stated above, Jain discloses crosslinking the antihalation layer prior to applying the photoresist layer (See column 4, lines 17-19 and Example 1).

Regarding claim 7, Jain discloses exposing the first photosensitive composition (antihalation layer) to actinic radiation through an image mask and developing to remove the exposed portion of said first photosensitive composition (See column 5, lines 29-32).

Regarding claim 8, Jain discloses removing the exposed portion of said first photosensitive composition (etching) (See column 5, lines 29-32).

Regarding claim 12, Jain discloses that the first layer is place over silicon wafer (a microelectronic wafer) (See column 31, line 32).

Regarding claim 13, Jain discloses exposing that the first photosensitive composition (antihalation layer) to actinic radiation (activating radiation) through an image mask and developing (treated with a developer) to remove the exposed portion of said first photosensitive composition (See column 5, lines 29-32).

8. Claims 5 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,888,702 (Koshimo).

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Regarding claim 5, Koshimo discloses a substrate for electronic materials (a microelectronic wafer) coated with an adhesive layer and a polyamide photoresist layer of the adhesive (See column 8, lines 10-17 and column 9, lines 62-64). Koshimo further discloses that "[i]t is desirable, therefore, to provide a light-absorbing layer or antihalation layer between the photosensitive polyamide layer and support layer. A dispersion or solution of a suitable dye or pigment in a resin having adherence to the support may be used to provide such a layer" and that the disclosed antihalation layer comprises a resin binder and a suitable dye, such as an anthroquinone dye like anthroquinone violet (anthracene compound) (See column 8, Lines 59-67).

Regarding claim 12, as stated above, Koshimo discloses that the coating may be used on electronic materials (microelectronic substrates) (See column 9, lines 62-64).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 4,910,122 (Arnold) in view of U.S. Patent 3,888,702 (Koshimo).

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Regarding claim 5, Arnold discloses antihalation/antireflective compositions comprising a polymeric resin, such as a polyimide resin (See column 2, lines 19-27), and an organic dye to absorb reflected light resulting from the exposure of an over coated photoresist layer (See column 4, lines 26-28). Arnold states that many dyes can be used in the disclosed invention, and that the dye should be selected to absorb at the wavelength of the radiation used to expose the photoresist (See column 4, lines 26-28). Arnold still further discloses spin-coating the antihalation composition on a silicon wafer, applying a layer of photoresist over the antihalation composition, exposing the resulting coated substrate to activating radiation, developing the exposed photoresist, then etching the coated substrate using an oxygen plasma (See column 4, lines 39-57; examples 1 and 2, col. 5, lines 1-55). Arnold does not specifically disclose the use of an anthracene in the antireflective layer.

Koshimo discloses a substrate for electronic materials coated with an adhesive layer and a polyamide photoresist layer of the adhesive (See column 8, lines 10-17 and column 9, lines 62-64-64). Koshimo further discloses that "[i]t is desirable, therefore, to provide a light-absorbing layer or antihalation layer between the photosensitive polyamide layer and support layer. A dispersion or solution of a suitable dye or pigment in a resin having adherence to the support may be used to provide such a layer" and that the disclosed antihalation layer comprises a resin binder and a suitable dye, such as an anthroquinone dye like anthroquinone violet (anthracene compound) (See column 8, Lines 59-67).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use an anthracene compound such as anthroquinone dye as disclosed by Koshimo for the radiation absorbing organic dye material of Arnold because it is disclosed to be a suitable dye for use in an equivalent light absorbing (anti-reflective) layer.

Regarding claim 12, as stated above, Arnold discloses spin-coating the antihalation composition on a silicon wafer (microelectronic wafer) (See column 4, lines 39-57; examples 1 and 2, col. 5, lines 1-55).

Regarding claim 13, Arnold discloses exposing the photoresist layer to light of the known required wavelengths (activating radiation) and then developing with a photoresist developer (See column 4, lines 39-57; examples 1 and 2, col. 5, lines 1-55).

Regarding claim 14, Arnold discloses that the photoresist may be removed with a short plasma etch cycle (See column 4, lines 49-57).

Regarding claim 15, Arnold discloses that the plasma etching of the photoresist may be performed with oxygen plasma (a plasma gas) (See column 4, lines 49-57).

Regarding claim 16, Arnold discloses that both the photoresist layer and the underlying film (the antihalation/antireflective layer) may be removed with a short plasma etch cycle (See column 4, lines 49-54). Thus, the antihalation layer must necessarily be penetrated by the oxygen plasma gas.

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11. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,863,827 (Jain) as applied to claim 7 above and further in view of U.S. 4,910,122 (Arnold).

Regarding claim 9, as stated above, Jain discloses a process for forming a multilevel photosensitive element consisting of a substrate coated with a first photosensitive layer comprising anthracene and having antihalation properties and a photoresist layer over the photosensitive layer. Jain further discloses that the photosensitive antihalation layer is cross-linked layer prior to applying the photoresist layer and then the photoresist is subsequently exposed to actinic radiation through an image mask and developed (treated with a developer) to remove the exposed portion of the first photosensitive composition. Jain does not specifically disclose that that the areas bared of photoresist are upon treatment with the developer, exposed to plasma gas.

Arnold discloses a process of coating antihalation compositions on a substrate and applying a layer of photoresist over the antihalation composition, followed by (1) exposing the resulting coated substrate to activating radiation, (2) developing the exposed photoresist, and (3) etching the coated substrate using an oxygen plasma (a plasma gas)(See column 4, lines 49-57). Arnold further discloses that using a dry etch process, such as a plasma etching process, allows the vehicle (portions of the antihalation layer) to be rapidly removed (See column 3, lines 48-53).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use oxygen plasma (a plasma gas) as disclosed by Arnold as the

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etchant for removing the developed areas of the antihalation layer of Jain since dry etching techniques such as oxygen plasma etching are disclosed to be a rapid method of etching during manufacture.

Regarding claim 10, Arnold discloses that both the photoresist layer and the underlying film (the antihalation/antireflective layer) may be removed with a short plasma etch cycle (See column 4, lines 49-54). Thus, the antihalation layer must necessarily be penetrated by the oxygen plasma gas.

Conclusion

12. Claims 1-16 are rejected.

Litigation Reminder

13. The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 6,472,128 throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly appraise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

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Future Correspondence

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Stein whose telephone number is 571-272-1544. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If the attempts to reach the examiner are unsuccessful, the examiner's supervisor, Deborah Jones can be reached by dialing 571-272-1535. The official fax number for the organization where this application is assigned is 571-273-9900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

By U.S. Postal Service Mail to:

Mail Stop *Ex Parte* Reexam
ATTN: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By FAX to: (571) 273-9900
Central Reexamination Unit

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By hand to: Customer Service Window
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Alexandria, VA 22314

April 6, 2007



Stephen J. Stein
Primary Examiner
Art Unit 3991

KILEY STONER
CRU EXAMINER-AU 3991

Conferee 

Conferee 

DEBORAH D. JONES
SPRE-AU 3991
CENTRAL REEXAMINATION UNIT

Notice of References Cited	Application/Control No. 90/008,359	Applicant(s)/Patent Under Reexamination 6472128	
	Examiner Stephen J. Stein	Art Unit 3991	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,863,829	09-1989	Furuta et al.	430/192
*	B	US-4,943,511	07-1990	Lazarus et al.	430/192
*	C	US-5,851,738	12-1998	Thackeray et al.	430/327
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.